What is claimed is:

A method for forming a porous film comprising the steps of:
 applying a film-forming composition containing a polysiloxane,
 a pore-forming agent, an onium salt, and a solvent onto a substrate,
 subjecting a first heat-treatment for evaporating said solvent
 from said film-forming composition,

subjecting a second heat-treatment for promoting the polymerization of said polysiloxane in an inert-gas atmosphere, and subjecting a third heat-treatment for vaporizing said pore-forming agent in an oxidizing-gas atmosphere.

- 2. The method for forming a porous film according to claim 1, wherein said first heat-treatment is carried out in an inert-gas atmosphere at a temperature of 350°C or below.
- 3. The method for forming a porous film according to claim 1, wherein said second heat-treatment is carried out at a temperature of 400°C or below.

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- 4. The method for forming a porous film according to claim 1, wherein said second heat-treatment is carried out at a temperature of 350°C or below.
- 5. The method for forming a porous film according to claim 1, wherein said third heat-treatment is carried out at a temperature equal to or lower than the temperature in said second heat-treatment.
- The method for forming a porous film according to claim 1,
 wherein said oxidizing gas is oxygen gas.

- 7. The method for forming a porous film according to claim 6, wherein said oxygen gas contains ozone or oxygen radicals.
- 8. The method for forming a porous film according to claim 1, wherein said polysiloxane is a hydrolytic condensation product of a compound represented by the general formula (1):

 [Formula 1]

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different moieties.

 $R_n SiX_{4-n}$ ····· (1)

wherein R represents a hydrogen atom, or an organic group having from 10 1 to 20 carbon atoms, X represents a hydrolysable group which may be the same as or different from each other, and n represents an integer from 0 to 2, with the proviso that when n is 2, R may be the same or

- 9. The method for forming a porous film according to claim 8, wherein the weight-average molecular weight of said polysiloxane ranges from 300 to 20,000.
- 10. The method for forming a porous film according to claim 1, 20 wherein said pore-forming agent is a polymer having an alkylene-oxide structure with a weight-average molecular weight of from 200 to 10,000.
 - 11. The method for forming a porous film according to claim 1, wherein said onium salt is an ammonium salt.

12. The method for forming a porous film according to claim 1, wherein said solvent is an alkylene glycol dialkylether or a dialkylene glycol dialkyl ether.

30 13. The method for forming a porous film according to claim 1, wherein said substrate is a semiconductor substrate.

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